

Kary Myers

Los Alamos National Laboratory

Statistical Sciences Group
Los Alamos, New Mexico 87545

505.606.1455

kary@lanl.gov

www.lanl.gov/expertise/profiles/view/kary-myers

Professional Experience

2006-present	Los Alamos National Laboratory , Los Alamos, New Mexico <i>Scientist</i> , Statistical Sciences Group
2015 summer	Imperial College London , London, England <i>Academic Visitor</i> , Statistics Section, Department of Mathematics
2001	WhizBang! Labs Research , Pittsburgh, Pennsylvania <i>Graduate Research Assistant</i>
1999, 2000	AT&T Shannon Labs , Florham Park, New Jersey <i>Graduate Research Assistant</i> , Artificial Intelligence Department and Machine Learning Department

Education

2006	Carnegie Mellon , Pittsburgh, Pennsylvania Ph.D., Statistics Department <i>Thesis</i> : Developing Models to Reveal Brain Activation in Massive Neuroimaging Datasets
2002	M.S., Machine Learning Department <i>Master's project</i> : A Boosting Approach to Topic Spotting on Subdialogues
1999	B.S. with University and College Honors, Statistics Department (Computer Science Minor) <i>Honors thesis</i> : Finding Galactic Clusters in Massive Astrophysical Datasets

Honors and Awards

2015	New Mexico Small Business Association Success Story
2015	Los Alamos Achievement Award (also 2007 and 2011-2013)
2014	American Statistical Association Chapter Service Recognition Award
2011	Early Career Scholarship, Isaac Newton Institute for Mathematical Sciences
2011	Certificate of Appreciation, ASA Section on Physical and Engineering Sciences
1999-2005	AT&T Labs Fellowship
2004	Student Paper Competition Winner, Statistical Computing and Graphics Sections of the American Statistical Association
2005, 2004	Student Scholarship, Spring Research Conference on Statistics in Industry and Technology
2004	Outstanding Reviewer Award, American College of Gastroenterology
1999-2003	Carnegie Scholars Program Fellowship
1999	Election to Phi Beta Kappa, Phi Kappa Phi, and Sigma Xi
1999	Richard Schoenwald Phi Beta Kappa Undergraduate Research Prize
1999	Lucent Technologies First Prize, Sigma Xi Undergraduate Research Competition

Activities and Service

Editorial Service

2012-present	Associate editor , <i>Annals of Applied Statistics</i>
2014-present	Associate editor , <i>Journal of Quantitative Analysis in Sports</i>
2014-present	Associate reviews editor , <i>Journal of the American Statistical Association</i>
2014-2015	Special issue editor , <i>Statistical Analysis and Data Mining</i>
2012-2013	Special issue associate editor , <i>Technometrics</i>
2011-2014	Production editor , <i>Bayesian Analysis</i> ,
2010-present	Editor , <i>CHANCE</i> magazine
2004-present	Referee , <i>Technometrics</i> , <i>Journal of Chemometrics</i> , <i>The American Statistician</i> , <i>Optical Engineering</i> , <i>Journal of Computational Neuroscience</i> , <i>American Journal of Gastroenterology</i>

Conference Organization

2012-present	Founder and chair , Conference on Data Analysis (CoDA) 2012, 2014, and 2016
2007	Co-chair , Quality and Productivity Research Conference

Service to the American Statistical Association

2012-2013	Founding officer and section representative (appointed), Statistics in Imaging
2012-2013	Program chair (elected), Statistical Graphics
2011-2013	President (elected), Albuquerque Chapter
2010-2011	Program chair (elected), Physical and Engineering Sciences
2010	Program chair (appointed), Council of Chapters
2009	Student award selection committee member , Bayesian Statistical Science
2007	Organizer , Special Award of the American Statistical Association, Intel International Science and Engineering Fair

Other Service

2015-present	Selection committee member , Department of Energy Computational Science Graduate Fellowship
2015	Selection committee member , Imperial College Data Science Institute Best Thesis Prize
	Peer reviewer , Laboratory Directed Research and Development Program:
2015, 2016	• Co-chair, Information Science & Technology Committee
2013, 2014	• Member, Computer Science, Mathematics, and Data Science Committee
2013, 2015	• Member, Early Career Research Committee
	Peer reviewer , National Institutes of Health:
2009	• Grand Opportunities Program (“GO Grants”)
2009	• Neurological, Aging and Musculoskeletal Epidemiology Study Section
2008	• Infectious, Reproductive, Asthma, and Pulmonary Study Section
2008	Instructor , Expanding Your Horizons Los Alamos

Professional Memberships

Phi Beta Kappa, Phi Kappa Phi, Sigma Xi Scientific Research Society, American Statistical Association, Association for Women in Mathematics

Publications and Presentations

Refereed Articles in Journals and Conference Proceedings

- 2016 **K. Myers**, E. Lawrence, M. Fugate, C. McKay Bowen, L. Ticknor, J. Woodring, J. Wendelberger, and J. Ahrens. Partitioning a Large Simulation as It Runs. *Technometrics*, DOI 10.1080/00401706.2016.1158740.
- 2014 B. Nouanesengsy, J. Woodring, J. Patchett, **K. Myers**, and J. Ahrens. ADR Visualization: A Generalized Framework for Ranking Large-Scale Scientific Data Using Analysis-Driven Refinement. In *4th IEEE Symposium on Large Data Analysis and Visualization (LDAV)*.
- 2014 Y. Su, G. Agrawal, J. Woodring, **K. Myers**, J. Wendelberger, J. Ahrens. Effective and Efficient Data Sampling Using Bitmap Indices. *Cluster Computing*, 17(4), 1081-1100.
- 2013 Y. Su, G. Agrawal, J. Woodring, **K. Myers**, J. Wendelberger, J. Ahrens. Taming Massive Distributed Datasets: Data Sampling Using Bitmap Indices. *22nd International ACM Symposium on High Performance Parallel and Distributed Computing*, 13-24.
- 2013 T. Burr, M.S. Hamada, **K. Myers**, M. Skurikhin. Point-Source Detection Using Gamma-Ray Spectra in Radiation-Portal Monitoring. *Journal of Quality Technology*, 45(3), 285-296.
- 2013 C. Longo, T. Burr, **K. Myers**. Change Detection Using Wavelets in Solution Monitoring Data for Nuclear Safeguards. *Axioms* (2), 271-285.
- 2012 T. Burr, A. Bakel, S. Bryan, K. Budlong-Sylvester, J. Damico, S. Demuth, M. Ehinger, H. Garcia, J. Howell, S. Johnson, J. Krebs, **K. Myers**, C. Orton, M. Thomas. Roles for Process Monitoring in Nuclear Safeguards at Aqueous Reprocessing Plants. *Journal of Nuclear Materials Management*, 40(2), 42-53.
- 2011 D. Hush, N. Pawley, **K. Myers**, R. Nemzek. A comparison of methods for estimating broadband noise in the frequency domain. In *Asilomar Conference on Signals, Systems and Computers*, IEEE Computer Society, 316-320.
- 2011 D.I. Moody, S.P. Brumby, **K.L. Myers**, N.H. Pawley. Radio frequency (RF) transient classification using sparse representations over learned dictionaries. In *SPIE Optical Engineering Applications*, International Society for Optics and Photonics, doi:10.1117/12.898894.
- 2011 D.I. Moody, S.P. Brumby, **K.L. Myers**, N.H. Pawley. Classification of transient signals using sparse representations over adaptive dictionaries. In *SPIE Defense, Security, and Sensing*, International Society for Optics and Photonics, doi:10.1117/12.883341.
- 2011 D.I. Moody, S.P. Brumby, **K.L. Myers**, N.H. Pawley. Sparse classification of RF transients using chirplets and learned dictionaries. In *Asilomar Conference on Signals, Systems and Computers*, IEEE Computer Society, 1888-1892.
- 2010 S. Brumby, **K. Myers**, and N. Pawley. Capturing dynamics on multiple time scales: A multilevel fusion approach for cluttered electromagnetic data. *SPIE Defense, Security, & Sensing*.
- 2009 N. Pawley, **K. Myers**, J. Galbraith, and S. Brumby. Capturing dynamics on multiple time scales: A hybrid approach for cluttered electromagnetic data. *43rd Asilomar Conference on Signals, Systems, and Computers*.
- 2009 T. Burr and **K. Myers**. Effects of background suppression of gamma counts on signal estimation. *Applied Radiation and Isotopes*, 67, 1729-1737.
- 2008 T. Burr and **K. Myers**. Signatures for several types of naturally occurring radioactive material. *Applied Radiation and Isotopes*, 66, 1250-1261.
- 2007 **K.L. Myers**, A.E. Brockwell, and W.F. Eddy. State-space models for optical imaging. *Statistics in Medicine*, 26, 3862-3874.

- 2007 T. Burr, J.R. Gattiker, **K. Myers**, and G. Tompkins. Alarm criteria in radiation portal monitoring. *Applied Radiation and Isotopes*, **65**, 569-580.
- 2004 **K. Myers**. The billion byte brain: Combining physiological data and gigabytes of images to improve maps of brain activity. *2004 Proceedings of the American Statistical Association*.
•Winner, Statistical Computing and Graphics Sections Student Paper Competition
- 2000 **K. Myers**, M. Kearns, S. Singh, and M.A. Walker. A boosting approach to topic spotting on subdialogues. *Proceedings of the Seventeenth International Conference on Machine Learning*, 655-662.

Technical Reports

- 2010 N.H. Pawley, **K.L. Myers**, J.P. Layne, and R.J. Nemzek. Analysis of RF signatures from multiple DOE foundries. Los Alamos National Laboratory Technical Report LA-CP-10-01600.
- 2010 R.J. Nemzek, T.D. Hamlin, S.C. Bender, J.P. Layne, **K.L. Myers**, N.H. Pawley, and R.W. Wysor. Propagation of emissions from the 3/P-DUT under differing power configurations during the Kazoo-3 test. Los Alamos National Laboratory Technical Report LANL-NISC-10-0036.
- 2010 N.H. Pawley, R.J. Nemzek, **K.L. Myers**, and T.D. Hamlin. Variation of RF signatures with simultaneous operation of multiple V-DUTs. Los Alamos National Laboratory Technical Report LANL-NISC-10-20.
- 2010 **K.L. Myers**, R.J. Nemzek, N.H. Pawley, and T.D. Hamlin. Variation of RF signatures across ten V-DUTs. Los Alamos National Laboratory Technical Report LANL-NISC-10-0009.
- 2010 **K.L. Myers**, N.H. Pawley, and R.J. Nemzek. V-DUT Pseudostacking: Understanding the limitations imposed by unit-to-unit variability in an idealized stacking scenario. Los Alamos National Laboratory Technical Report LANL-NISC-10-0010.
- 2009 R.J. Nemzek, T.D. Hamlin, **K.L. Myers**, and N.H. Pawley. Spectral prescriptions for DUTs used in the Kazoo and INL test campaigns. Los Alamos National Laboratory Technical Report LANL-NISC-09-0215.
- 2009 R.J. Nemzek, S. Bender, T.D. Hamlin, J. Layne, **K.L. Myers**, and N.H. Pawley. LANL RF measurements during the Kazoo-2 campaign. Los Alamos National Laboratory Technical Report LANL-NISC-09-0216.
- 1999 A. Moore, J. Schneider, B. Anderson, S. Davies, P. Komarek, M.S. Lee, M. Meila, R. Munos, **K. Myers**, and D. Pelleg. Cached Sufficient Statistics for Automated Mining and Discovery from Massive Data Sources. Technical report, Robotics Institute and School of Computer Science, Carnegie Mellon University.

Other Articles

- 2014 **K. Myers** and S. Vander Wiel. Invited discussion of “Data Science: An Action Plan for Expanding the Technical Areas of the Field of Statistics” by William S. Cleveland. *Statistical Analysis and Data Mining*, **7**(6), 420-422.
- 2008 **K. Myers**. Strategies for pursuing graduate school fellowships. *International Society for Bayesian Analysis Bulletin*, **15**(2).
- 2007 W.F. Eddy, R. McNamee, and **K.L. Myers**. Imaging the living brain. *CHANCE*, **20**(4).

Invited Talks and Seminars

Key: **IS** \equiv Invited Seminar < 60m; **IT** \equiv Invited Talk < 35m

Partitioning a Large Simulation as It Runs

- IT 2016 **Conference on Data Analysis**, Santa Fe, New Mexico, USA
- IS 2015 **Middlesex University**, London, UK
- IS 2015 **Imperial College London**, London, UK

Malt Balls or Malt Beer? Detecting the Prohibited Operation of Dual-Use Facilities

- IS 2014 **Imperial College London**, London, UK
- IS 2014 **Colorado School of Mines**, Golden, Colorado, USA
- IS 2013 **Draper Laboratory**, Cambridge, MA, USA
- IS 2013 **N.O.R.C.**, Chicago, IL, USA
- IS 2012 **Sandia National Laboratories**, Livermore, CA, USA
- IS 2012 **Augsburg Institut für Mathematik**, Augsburg, Germany
- IS 2012 **Simon Fraser University**, Burnaby, BC, Canada
- IS 2011 **Carnegie Mellon**, Pittsburgh, PA, USA
- IS 2010 **Kansas State University**, Manhattan, KA, USA
- IS 2010 **Lawrence Livermore National Laboratory**, Livermore, CA, USA

Same or Different? Identifying Similarities and Computing Distances Between Images

- IT 2009 **Joint Statistical Meetings**, Washington, DC, USA

Developing Models to Reveal Brain Activation in Massive Neuroimaging Datasets

- IT 2007 **Center for the Neural Basis of Cognition**, Pittsburgh, PA, USA
- IS 2006 **Los Alamos National Laboratory**, Los Alamos, NM, USA
- IS 2006 **Mayo Clinic**, Rochester, MN, USA
- IS 2006 **Merck**, Rahway, NJ, USA
- IS 2006 **Pittsburgh Cancer Institute**, Pittsburgh, PA, USA
- IS 2006 **Battelle**, Columbus, OH, USA
- IS 2006 **UT Southwestern Medical Center**, Dallas, TX, USA
- IT 2005 **Spring Research Conference on Statistics in Industry and Technology**, Park City, UT, USA
- IT 2005 **ENAR Spring Meeting**, Austin, TX, USA
- IT 2004 **Interface**, Baltimore, MD, USA
- IT 2004 **Center for Automated Learning and Discovery Research Day**, Pittsburgh, PA, USA

Research Areas

Selected Los Alamos Research

MATADOR: Methods for Analyzing Temporal Activity from Data Observed Remotely

Led a 2-lab effort to detect and characterize prohibited operation of multi-use facilities. Building on functional data analysis and bioinformatics techniques.

DAIS-E: Data Analysis In-Situ Engine

Developed statistical methods to incorporate within massive scientific simulations in order to identify interesting results as they arise during the simulation run.

Synthetic Dataset Development for Electromagnetic Signatures

Involved in the formation of a 4-lab effort to model electromagnetic emissions and signatures. Apply statistical approaches to the tasks of model validation and data set generation.

Exploitation of Radiofrequency Signatures

Provided statistical and algorithm expertise to detect and quantify signatures in radiofrequency measurements.

Cyber Quantitative Risk Initiative

Developed a quantitative, risk-based approach for protecting information systems at Los Alamos National Laboratory by incorporating information from both qualitative and quantitative data sources.

Image Metrics

Developed metrics for comparing experimental images to simulated images.

Radiation Portal Monitoring

Tested several methods for accounting for background suppression when using gamma detectors at border crossings to detect illicit nuclear material.

Graduate Research

Making Maps of Brain Activation with Optical Imaging Data

Thesis research. Identifying and modeling physiological and instrumental sources of noise in optical imaging data in order to make better maps of brain activity.

Magnetic Resonance Imaging of Changes in Nasal Airway Volume

Identified areas for improving experimental design and magnetic resonance imaging technique in a study of mice exposed to isocyanates.

Maximum Entropy Markov Models for Part-of-Speech Tagging

Wrote software using maximum entropy Markov models (McCallum et al., 2000) to assign part-of-speech tags to words in a body of text.

Machine Learning for Extraction of Biographies from Text

Explored the task of augmenting a question answering system with a means of identifying descriptive text that could answer "Who is X ?"

A Boosting Approach to Topic Spotting

Applied BoosTexter (Schapire & Singer, 2000) to the Switchboard corpus of spontaneous speech to develop an end-to-end system for topic spotting.